

PROCEEDINGS
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THREE NEW WOLVES FROM NORTH AMERICA.

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A monograph on the wolves of North America, by Stanley P. Young and the writer, is approaching completion. In order to facilitate discussion of the various geographic races in the text, it seems desirable to publish the descriptions of three that have remained unrecognized until now. For the loan of material used in characterizing a new form from British Columbia, and for other courtesies, I am indebted to Dr. G. Clifford Carl, Acting Director of the Provincial Museum, Victoria, British Columbia.

New subspecies of wolves are segregated as follows:

***Canis lupus alces*, subsp. nov.**

KENAI PENINSULA WOLF.

Type.—From Kachemak Bay, Kenai Peninsula, Alaska. No. 147471, ♀ adult, skull only, U. S. National Museum (Biological Survey collection); collected by C. A. Lambert, 1904. X-catalog number 5133.

Distribution.—Known only from the type locality, near the southern end of the Kenai Peninsula.

General characters.—Size large—perhaps the largest of North American wolves; skull elongated with broad rostrum and narrowly spreading zygomata; canines large, but molariform teeth comparatively small. Similar in general to *Canis lupus pambasileus* of the Mount McKinley region, but apparently larger and differing in cranial details.

Color.—No skins available and color undetermined.

Skull.—Similar in general to that of *pambasileus*, but apparently larger, more elongated; rostrum longer; nasals broader, more divergent anteriorly; supraoccipital shield broader; dentition similar, but molariform teeth relatively narrower.

Measurements.—No body measurements available. Skull: Type, and an adult female topotype, respectively: Greatest length, 280.5, 272; condylo-basal length, 263.5, 253.2; zygomatic breadth, 141.3, 141.4; squamosal constriction, 82.2, 81.8; width of rostrum, 47.4, 46.6; interorbital breadth, 49, 45.9; postorbital constriction, 44.3, 42.1; length of mandible, 201.3,

194.3; height of coronoid process, 79.1, 82; maxillary tooth row, crown length, 118.5, 112.3; upper carnassial, crown length (outer side), 25.5, 24.5, crown width, 12.8, 13; first upper molar, antero-posterior diameter, 17.1, 17.1, transverse diameter, 22.3, 22.3; lower carnassial, 30.3, 29.1. Two immature male topotypes (canines not fully in place), respectively: Greatest length, 263, 262.8; condylobasal length, 245, 250; zygomatic breadth, 133.8, 130.5; squamosal constriction, 80.7, 82.3; width of rostrum 44.7, 45.7; interorbital breadth, 43.9, 42.5; postorbital constriction, 42.4, 40.9; length of mandible, 185, 190; height of coronoid process, 76.5, 74; maxillary tooth row, 108.6, 113.2; upper carnassial, crown length (outer side), 26, 27.5, crown width, 14.4, 15.4; first upper molar, antero-posterior diameter, 16.8, 17.3, transverse diameter, 23.3, 23.3; lower carnassial, 28.9, 31.1.

Remarks.—Five skulls without skins, from Kachemak Bay, Kenai Peninsula, do not appear to be properly assignable to any of the races described and are, therefore, regarded as representatives of a new subspecies. This segregate reaches the maximum size attained by the species in North America. The skulls of two adult females are longer than those of any others examined, and present other peculiarities pointed out. Skulls of three immature males are not widely different from those of *pambasileus* of comparable age, but differ uniformly in the greater width of the supraoccipital shield. The new subspecies may range throughout the Kenai Peninsula, which at its base is narrowly connected with the mainland of Alaska. Specimens from north of Turnagain Arm of Cook Inlet are assignable to *pambasileus*. The principal natural prey of the Kenai wolf is doubtless the giant moose of the region.

Specimens examined.—Total number, 5 (skulls only), all from Kachemak Bay, Kenai Peninsula, Alaska.

***Canis lupus columbianus*, subsp. nov.**

BRITISH COLUMBIA WOLF.

Type.—From Wistaria, north side of Ootsa Lake, Coast District, British Columbia. No. 3559, ♂ adult, skull only, British Columbia Provincial Museum; collected by J. C. Shelford, November, 1938.

Distribution.—Greater part of British Columbia, west of the Rocky Mountains and the Stikine Mountains, passing into *Canis lupus fuscus* near the southwestern coast and into *Canis lupus ligoni* along the coast bordering the Alexander Archipelago of southwestern Alaska; grades into *Canis lupus occidentalis* in the Peace River region, and farther south into *Canis lupus irremotus*.

General characters.—Size large; upper parts suffused with light "cinnamon buff" (Ridgway, 1912); skull with broad supraoccipital shield and narrow carnassials. Approaches *pambasileus* of Alaska and *occidentalis* of Mackenzie in size, but reaches less extreme maximum dimensions, and differs from both in color and cranial details. Differs from *irremotus* of Montana in larger usual size, more "cinnamon-buff" coloration, and broader post-orbital region of skull. Differs from *fuscus* of Oregon in larger size, paler

color, and cranial features, especially the longer nasals. Differs from *ligoni* of the Alexander Archipelago, Alaska, in greater usual size, and more "cinnamon-buff" suffusion of upper parts.

Color.—A female in fresh pelage from Chezacut, north shore of Chilcotin Lake, No. 4728, British Columbia Provincial Museum: Upper parts in general suffused with light "cinnamon-buff," purest and most intense on sides of shoulders, flanks, and thighs; top of head "cinnamon-buff" mixed with black, becoming abruptly grizzled grayish on forehead and face; muzzle and chin brownish; under side of neck "pale pinkish buff" slightly darkened by black tips of longer hairs; chest and thorax "pinkish buff"; inguinal region white; ears "cinnamon" mixed with black; lower part of legs "pinkish buff," a narrow blackish line along anterior surface of forearm; upper side of tail near base with under color "pale pinkish buff," heavily overlaid with black, passing into "cinnamon-buff" more moderately darkened by black-tipped hairs, becoming black at end as usual in the species; under side of tail pure "pale pinkish buff" on proximal two-thirds, passing into a "pinkish buff" suffusion overlaid with black toward tip.

Skull.—Closely resembling that of *pambasileus*, but usually smaller; supraoccipital shield broader; postorbital processes slenderer, more tapering; carnassials relatively narrower, more elongated (antero-posteriorly); second lower molars larger, more elongated. Very similar to that of *occidentalis*, but usually smaller; postorbital processes slenderer, more tapering; dentition as a whole lighter, but second lower molars larger; canines more slender; carnassials relatively narrower. Compared with *irremotus*: Size larger; frontal region broader, less constricted behind postorbital processes; supraoccipital shield usually broader, more rounded near apex; dentition similar. Compared with *fuscus*: Size larger; nasals relatively longer, extending farther posteriorly beyond ends of maxillae; second lower molars relatively larger. Differs from that of *ligoni* most obviously in greater usual size.

Measurements.—Approximated from tanned skin of a female from Chezacut (used in color description): Total length, 1600 mm.; tail vertebrae, 370. Skull (type, and an adult male topotype, respectively): 272.9, 263.9; condylobasal length, 260, 244.4; zygomatic breadth, 148.4, 147.7; squamosal constriction, 82.5, 80.8; width of rostrum, 46, 45; interorbital breadth, 48.8, 43.1; postorbital constriction, 45.7, 38.3; length of mandible, 196.2, 193; height of coronoid process, 75, 80.9; maxillary toothrow, 112.1, 107.3; upper carnassial, crown length (outer side) 27.1, 26.8, crown width, 13.8, 14; first upper molar, antero-posterior diameter, 17.3, 16.4, transverse diameter, 24.1, 22.9; lower carnassial, crown length, 31.1, 29.5. Two adult female topotypes, respectively: Greatest length, 262.2, 266.5; condylobasal length, 235.8, 246.4; zygomatic breadth, 140, 133.8; squamosal constriction, 79.3, 79.5; width of rostrum, 45.4, 43.1; interorbital breadth, 46.8, 42.7; postorbital constriction, 44.6, 37; length of mandible, 185.3, 188.7; height of coronoid process, 73.6, 73, maxillary toothrow, 105.8, 108.4; upper carnassial, crown length (outer side), 25.6, 24.7, crown width, 12.9, 13.4; first upper molar, antero-posterior diameter, 16.7, 17.1, transverse diameter, 22, 21.8; lower carnassial, 29, 28.2.

Remarks.—The British Columbia wolf, *columbianus*, approaches its larger northern neighbors in size, but differs in combination of color and cranial details. Two skulls from Iskut Summit, 60 miles south of Telegraph Creek, are large for *columbianus*, but present somewhat mixed characters in detail. They probably represent intergradation with *pambasileus* or *occidentalis*. Although from a locality not far distant from the range of *ligoni*, which is mainly confined to the Alexander Archipelago, these specimens exhibit a marked departure from those of that race in size and detailed characters. The British Columbia subspecies is believed to be increasing in numbers in some of the more remote sections of the country.

Specimens examined.—Total number, 17, as follows:

British Columbia: Bowron Lake, Cariboo District, 1 (skull only)¹; Chezacut, north shore Chilcotin Lake, 3 (2 skulls without skins)¹; Iskut Summit (60 miles south of Telegraph Creek), 2 (skulls only)³; Kettle River, 2 (skulls only)²; Little Prairie, Horsefly River, Cariboo District, 1 (skull only)¹; Pemberton, Lillooet District, 1 (skull only)¹; Roche River, (tributary of Similkameen River), Yale District, 1 (skull only); Telegraph Creek, 1 (skull only)¹; Vernon, Yale District, 1 (skull only)¹; Wistaria, north side of Ootsa Lake, Coast District, 4 (skulls only)¹.

Canis lupus hudsonicus, subsp. nov.

HUDSON BAY WOLF.

Type.—From head of Schultz Lake, Keewatin, Canada. No. 180281, ♂ adult, skin and skull, U. S. National Museum (Biological Survey collection); collected by H. V. Radford, January 4, 1912. Original number 92.

Distribution.—Northern Keewatin, including the northwestern coast of Hudson Bay (Cape Fullerton).

General characters.—A light-colored subspecies of medium size; winter pelage nearly white, but hairs becoming grayish or brownish toward base over dorsum; skull with rather broad postorbital region and narrow, acutely pointed postorbital processes. Similar in general to *Canis lupus occidentalis* of Mackenzie, but smaller, and cranial features distinctive. Size and color about as in *Canis lupus arctos* of Melville Island, but cranium flatter, less highly arched, the frontal outline much less strongly convex in lateral view, and differing in other details. Differs from *Canis lupus lycaon* of Quebec in larger size and whiter coloration.

Color.—*Type* (winter pelage): Upper parts in general yellowish white, or "cream color" (Ridgway, 1912); top of head and middle of face with dark brown under color faintly showing through; guard hairs over dorsum with a brownish band near middle below which they are whitish to base, the shorter under fur on the same area brownish at base, becoming pale yellowish toward tips; under parts overlaid with yellowish white, the under tone whitish to base of hairs; limbs about like under parts; feet "onion-skin pink" between the toes, as usual in the group; tail "cream color," except

¹ Provincial Museum, B. C.

² Kansas Univ. Mus. Nat. Hist.

³ Mus. Vert. Zool.

on the median line near upper base, where black-tipped hairs tend to form a conspicuous, elongated patch. A skin from Cape Fullerton, Hudson Bay, is whiter, the yellowish tone being absent, and the tail lacks the dusky spot on upper base.

Skull.—Similar in general to that of *occidentalis*, but differs in decidedly smaller size; postorbital processes more slender and more acutely pointed. Similar in size to that of *arctos* but flatter, the frontal region less highly arched and convex in lateral view, more deeply V-shaped along median line in posterior view; zygomata tending to spread more widely; auditory bullae slightly larger, more fully inflated; postorbital processes narrow and acute as in *arctos*; dentition similar, but antero-internal cusps of upper carnassials less prominent. Compared with that of *lycaon*, the skull is much larger, with relatively broader rostrum.

Measurements.—*Type*: Total length, 1720 mm.; tail vertebrae, 519; hind foot, 323; height at shoulder, 848; weight, 101 pounds. An adult female topotype, 1570; 420; 290. Skull (type, and an adult female topotype, respectively): Greatest length, 258.3, 251; condylobasal length, 241, 228.8; zygomatic breadth, 146.4, 134.8; squamosal constriction behind zygomata, 83.9, 77.4; width of rostrum (at constriction behind canines), 46, 42.4; interorbital breadth, 47.2, 44.4; postorbital constriction, 41.8, 43.2; maxillary toothrow, 110.1, 104.1; upper carnassial, crown length (outer side), 26.8, 24.5, crown width, 14.2, 13.8.

Remarks.—The wolves of northern Keewatin and the northwest coast of Hudson Bay are closely allied to *occidentalis*, the geographic neighbor on the west, but the differential characters pointed out seem to warrant the segregation of a regional race. Comparison with a skull from Ellesmere Island, assumed to represent *arctos*, indicates more distant relationship.

Specimens examined.—Total number, 6, all from Keewatin, as follows: Cape Fullerton, 1⁴; Hudson Bay (without definite locality, 1⁴; Schultz Lake, 3 (2 skulls without skins); Wager River, 1 (skull only)⁴.

⁴Amer. Mus. Nat. Hist.